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The Signalling Value of Public Issue and Offer for Sale Ratios on the Performance of Initial Public Offers

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ABSTRACT

Investors of initial public offers (IPOs) rely on the prospectus for important information about the company. But the motivation of the issuers (original shareholders) for going public is unknown and hidden from the investing public, making the IPO investment a risky venture. Based on the Signalling Theory, we postulate that the public issues (PI) and offer for sale (OFS) ratios to contain properties to signal the intention of the issuers at time of listing. Our samples are collected from the Bursa Malaysia from 2002 to 2008 and the performances are tracked till 2011. The regression results are consistent with the Signalling Theory which stipulates that when issuers sell down their stakes, it sends a gloomy signal, even though the offer of OFS does not cause any dilution to company's value. In addition, small companies with high OFS ratio record weaker long-run performance than large companies.

Keywords: *IPO, public issue ratio, offer for sale ratio, performance*

INTRODUCTION

Initial public offers (IPOs) are shares or stocks of companies that are offered to the general public for the first time upon listing on the stock exchange. There are many reasons why private companies go for public listing. The most common reasons are the need for funds for business expansion, to facilitate merger and acquisition and for prestige reasons which are expected to have positive effects on firm's value (Brau & Fawcett, 2004). However, there are other reasons behind the floatation ambition that could bring negative repercussions such as the exit intention of the issuers or the expected downturn of the industry. It may even be possible that the real intention of going public is concealed by the issuer in order to maximise returns at the expense of investors (Ang & Brau, 2003).

The shares offered for subscription during IPO come from two sources, the first is the public issue (PI) and the second is the offer for sale (OFS). The former refers to the issuance of new shares to the public while the latter are shares owned by the original shareholders (pre-IPO owners). While PI enlarges the capital base and these shares are commonly referred as primary shares, OFS on the other hand are secondary shares whereby the proceeds belong to the pre-listing owners. Past studies have shown that information on the quantum of shares offered from the PI and the OFS sources carry hidden messages and thus, affect the post-IPO performance of the company differently. This is due to the fact that the proceeds from PI flow into the company's balance sheet while those from OFS goes into the private pockets of the pre-listing owners. Several past studies examine the signalling effects on this type of information on the post-listing performance of the IPO (Butler, Keefe & Kieschnick, 2009; Michaely & Shaw, 1994).

When an IPO is open for subscription, investors are faced with a challenging task of evaluating the future prospect of the subject company before making the decision whether to participate. They hinge on the IPO prospectus for information on company's past and current financial performance as well as its projected future prospect. Nevertheless, prospectus excludes other pertinent information such as goodwill, technical knowhow and original shareholders' real motivation for public listing. This type of information is rarely available and disclosed to the public. Past studies have shown that the issuer's decision on the quantum of shares

designated for PI and OFS contain some useful signals to the investing public. In lieu of that, this study employs the PI and the OFS ratios in the IPO offerings as the proxies for the issuer's motivation that affect the post listing performance of IPOs. Using proven statistical method, the intention of this study is to utilise ex-ante information (Bazeet & Nurwati, 2018), which are readily available to prospective investors during the IPO offering period to predict the post-listing performance of firm's values.

Our data comprise of 89 and 106 Malaysian IPOs listed on the Main and Second Board of Bursa Malaysia respectively from the years 2002 until 2008. However, the short and long terms post-listing performance utilizing the abnormal returns methodologies are conducted up till 2011. We exclude the MESDAQ counters because the Securities Commission of Malaysia (SC) prohibits the offering of OFS shares by the MESDAQ IPOs. Our regression results suggest that the OFS ratio has a significant signalling power on the future performances of IPOs.

The rest of the paper is organised as follows; Section 2 provides the literature reviews, Section 3 describes the data collection process while Section 4 and 5 explain the methodology and the findings respectively. Finally, the conclusion is presented in Section 6.

LITERATURE REVIEW

According to Huyghebaert and Van Hulle (2006), companies that issue primary share are mainly young and small firms with high market to book and low return on asset ratios. The motive of these firms issuing primary shares is to boost working capital especially when the industry valuation is high. Another characteristic of firms offering primary shares is to pare-down on bank borrowings. Brau, Li and Shi (2006) confirm that in a bullish market where the demand for shares is strong, firms issue more shares and raise more capital than initially planned. Therefore, companies issuing PI shares are mainly for business expansion and to take advantage of the favourable market condition. Therefore, it is unlikely that there is any other motive or hidden agenda. Another study by Loughran and Ritter (2002) examine the effect of the PI ratio on the first day return (D1) based on 6169 US IPOs between 1980 and 2000. A dummy variable is used to represent the pure

primary issue. The correlations between the first day return and the primary issue dummy is -1.95% between 1980 and 2000 and -3.24% between 1990 and 1998, both coefficients are significant. They conclude that the pure primary offer IPOs underperform the market on the first day, however the long-term relationships are not established. Similar study by Durukan (2002) who examines the performance of 173 IPOs in the Istanbul Stock Exchange between 1990 and 1997 reports insignificant relationship on Day 1 while the beta coefficients for the PI ratio of Month 12 and Month 24 are -2.89% and -2.41% respectively, both significant. In addition, according to Dolvin and Pyles (2005), the issuance of a large number of new shares should have a short-run and long-run negative impact due to the effect brought about from the dilution of stock ownership. Evidently, most empirical studies report that the relationships between PI ratio and IPO performance are mildly negative. Therefore, a high PI ratio is expected to portray a negative signal to the IPO's market.

Apart from the PI offer, there is the offer for sale (OFS) tranche whereby shares held by pre-IPO shareholders are offered to the public. Since these proceeds do not increase the issued and paid-up capital of the company, investors have no worry about the dilution of ownership. Instead, these issuances carry information on the selling down of the company's share by the original owners which should have negative implications on the future performance of IPOs. The reasons for the off-loading may range from non-financial (personal) or financial reasons namely, the original shareholder's pessimism on the company's future prospects. For example, Jain, Jayaraman and Kini (2007) are convinced that the extent of insider selling their shares provides an effective signal to infer the future performance of the firm. However, Brau, Li and Shi (2006) explain otherwise, they argue that the PI and OFS ratios have little impact on the post-listing IPO performance of the US companies. But they find that, when the seller of the OFS tranche is from the manager or director, the long-term post listing performance of firms are bound to be negative. Their observations are supported by the Agency and the Asymmetry Information theories.

Furthermore, when the informed insiders sell their stake, the market tends to treat the information as bad news, resulting to lower stock price. This is evident in the study by Bessler and Kurth (2007) that utilised 307 German IPO samples from 1998 and 2001. They observed that substantial

selling of existing shares (OFS) by the bankers and venture capitalist just before the listing is very often followed by the poor performance. The market participants view the sell down as a move to exit by the insider and when coupled with a long lock-up period, send a negative signal to the market. Zingales (1995) argues that the decision to go public could be viewed as a decision to sell out the company. Studies by Rydqvist and Hogholm (1995) confirm that 36% of Sweden and 34% of UK IPOs change control within five years from listing while Mikkelson, Partch and Shah (1997) discover that 29% of established firms and 13% of young start-up change owners in USA within five years post listing.

The negative effect of the OFS offer is widely anticipated by the market participants. Ang & Brau (2003) carry out an analysis with 1837 USA IPOs of which 762 are pure OFS IPOs between 1980 and 1997. The authors find that in a hot market when demand for shares is strong, the number of shares offer from the OFS tranche can be six times higher than the PI tranche. Aware of the negative signalling effect that comes with OFS, issuers often conceal their intention by filling a lower level of OFS shares in the initial filling papers to the Securities Commission but upon obtaining the approval for listing and when demand is still strong, seek approval to inflate the OFS tranche at the last moment to maximise proceeds (Wealth Maximise Hypothesis). As the proceeds from OFS goes towards private pockets, issuers have the motivation and incentive to conceal the negative impact of the OFS signal by manipulating the level of OFS, at the expense of IPO investors.

Nevertheless, there are empirical studies which find that the level of OFS do not cause poor IPO performance. Such studies include Durukan (2002) in a Turkey study, points out that the OFS tranche outperforms the PI tranche in all windows in a univariate regression. However, in the regression of the full model, the pure OFS offers underperform only on Day 1 but not over the long-term.

A study of Malaysian IPOs by Yong, Yatim and Sapian (2001) based on 93 Main Board IPOs and 134 Second Board IPOs between 1991 and 1995, discovers that the first day returns of the pure PI, pure OFS and the mixed mode IPOs for the Main Board to be 87.28%, 93.34% and 64.28% respectively. For the Second Board, the returns are 71.51%, 79.21% and

65.70% respectively. The differences in the performance although are not statistically significant but the trend is clear that Main Board IPOs outperform the Second Board IPOs, the pure OFS IPOs outperform the pure PI offers and the mixed offers have the worst returns on Day 1. Their findings clearly show that the PI and OFS ratios have dissimilar effect on the performance of Malaysian IPOs. The long-term effect on performance however, has not been carried out in this study. In addition, the negative correlation on Day 1 has been found to be -0.167 (p=10%) by Norliza *et al.* (2017) in the Malaysian market based on 419 IPO samples between 2000 and 2015.

Turning to studies of a long-term nature, Dolvin and Pyles (2002) find that high OFS IPOs demonstrate long term superior return in their empirical study which uses 3190 US IPOs between 1986 and 2000. According to the authors, when the PI ratio increases, the number of issued and paid-up shares dilute the value of the shares and that lead to lower performance in the future. On the other hand, the shares from the OFS tranche do not have the dilution effects thus, its issuance leads to improved long-term returns. The best long term investment strategy recommended by the authors is to buy shares that have low first day and first month appreciation, coupled with the association with high underwriter reputation and companies from the high technology industry.

The empirical evidence of OFS on firm's performance discussed so far have produced mixed results. In addition, some find that the OFS ratio is a poor predictor of performance. Kim and Weisbach (2008) use 17226 IPOs across 38 countries between 1990 and 2003 to study the post listing performance of IPOs. They show that high OFS offers lead to wealth transfer between the existing shareholders and the new investors. The level of OFS is highly correlated with the market or industry's Market to Book Ratio. Therefore the decision to offer OFS shares depends on the market demand and the actual number of OFS share allocated to the public is affected by the market valuation. Brau, Li and Shi (2006) concur with USA samples that the level of OFS and the OFS price revision have no implication on the share price performance. The decision on the level of PI and OFS offered to the public during IPO solely depends on the market demand. Goergen and Renneboo (2003) use 52 Germany and UK IPOs between 1981 and 1988, reinforce that the retention and the OFS Ratios do not have any significant influence on the long-term performance of companies.

Relating to the Malaysian IPO market, pure PI and pure OFS are rare occurrence. Most IPOs consist of a mixture of both PI and OFS at various proportions. In view of the literature surveyed, so far, the PI and OFS ratios are expected to carry negative signals on the performance due to the following reasons. Firstly, as the PI and the OFS ratios increase, the dilution of ownership of the original owners occur, causing the owners to own less of the companies. Secondly, as the OFS ratio increases, the market begins to doubt the issuer's sincerity to be a corporate builder who looks after minority shareholder's interest. The above postulations are consistent with the Signalling Theory proposed by Leland and Pyle (1977) and Grinblatt and Hwang (1989) that high PI and OFS ratios (leading to low retention) are negatively correlated with firm's post-listing performance. Therefore, we hypothesise that when the PI and OFS ratios are high, it carries a warning to investor, to expect lower future firm values. The negative effect of the OFS ratio is likely to be more severe than the PI ratio because of the likely moral hazard on the part of the issuers.

DATA AND RESEARCH METHODOLOGY

Our secondary data are collected from the Bloomberg financial data service provider and the Bursa Malaysia. Stock market related information of the sample companies such as the offer prices, daily closing prices, the entitlement announcements and market indices are downloaded from Bloomberg. However, the closing prices collected from Bloomberg are raw and are unsuitable to be used to calculate the returns of the sample companies directly. These raw data have to be adjusted for various corporate announcements such as the dividend, bonus and right issues, share consolidation and split to compute their actual returns before they are deemed usable. The adjusted returns of the companies constitute the components to derive the dependent variables calculated by CAR and BHAR which are illustrated in sub-section 3.1.

On the other hand the Bursa library keeps copies of the IPO prospectus which contain information on the number of shares offered via the PI and OFS arrangements which form the independent variables. The derivation of this set of data is discussed in detail in sub-section 3.2.

Sub-section 3.3 illustrates the regression models and this is followed by the justification for the sample period selected for this study in sub-section 3.4.

The Derivation of CAR and BHAR as the Dependent Variables

The two set of dependent variables in our regression models are the Cumulative Abnormal Return (CAR) and the Buy and Hold Abnormal Return (BHAR). The function of CAR and BHAR is to uncover whether the sample returns outperform the market returns following the IPO event. The resulting net positive return is termed abnormal profit and the opposite is referred to as abnormal loss. These two methods utilise the Market Adjusted Abnormal Return (MAAR) as the common platform to derive the over and under performance of the sample companies using FBMEMAS as the market index to benchmark the market returns. The FBMEMAS has the broadest coverage as it consists of all the companies on the Main Board. This index is best suited to represent the market movement as the samples in this study cover a wide range of companies.

To calculate CARs and the BHARs, we first have to compute MAARs which are the difference between the closing price movements and the market index changes over various windows. The objective behind the derivation of MAARs is to determine whether the sample firm has over or underperformed the market. The essential components to this calculation are the adjusted daily closing prices and the synchronised daily market indices up to three years post listing, as in Nurwati, Campbell and Goodacre (2007). A positive MAAR means this stock has beaten the market returns and vice versa. This process is repeated using daily data for each sample IPO firm up to three years (Y3). There are approximately 21day trading days in a calendar month and the windows of study for the short-term are for day 1 (D1), one month (M1), three month (M3) and six month (M6). The long-term windows are one year (Y1), two years (Y2) and three years (Y3).

The function of the market adjusted Cumulative Abnormal Return (CAR) adjusted by the FBMEMAS involves the accumulation of the daily MAARs for the seven short and long-term windows. The formula is depicted below:

$$CAR_{(i,t)} = \sum_{t=D1}^{Y3} MAAR_{i,t} \quad \text{. . . . . Eq.1}$$

i = Sample IPO, t = D1*, M1, M3, M6, Y1, Y2 & Y3 windows. *D1 uses the Offer Price as base.

An important point to note, most methodologies used to calculate the long-term ARs suffer from some form of deficiency. CARs in the study of stock market performance suffer from measurement bias, new listing bias and rebalancing bias.

Another common method to measure the abnormal returns of stock market is the market adjusted Buy and Hold Abnormal Return (BHAR). The BHAR methodology utilises the same data source as the CAR to derive the performance of IPOs. Instead of arithmetically adding up the gains and losses of the daily MAARs as in CAR, the BHAR assumes that investors hold on to the investment and only cash out at the end of a specific window periods. The formula of BHAR is depicted next:

$$BHAR_{i,t} = \left[\prod_{t=D1}^{Y3} (1+R_{i,t})\right] - \left[\prod_{t=D1}^{Y3} (+R_{mt})\right] \quad \text{. . . Eq.2}$$

i = sample IPO, t = D1*, M1, M3, M6, Y1, Y2 & Y3 window. * D1 uses the Offer Price as base.

Rit is the raw return for firm i at window t and Rmt is the corresponding market return. Similar to other methods used to calculate the abnormal market returns especially for long-term windows in access of six months, severe discrepancies in the results may arise from the methodology adopted. This is the findings of Moshirian, Ng and Wu (2010) after analysing IPOs performance of six Asia countries between 1991 and 2004. Although BHAR is able to reflect the investor's experience better, it too suffers from the new listing, rebalancing and rather severe skewness biases. Thus, cares are recommended when deriving the long-term abnormal returns.

The Derivation of PI and OFS Ratios as the Independent Variables

The PI and OFS ratios are computed by dividing the number of shares offered through the PI and the OFS arrangements by the enlarged number of shares of the company during the IPOs. These two ratios form the independent variables in the regressions. The extent of the PI and OFS shares are offered in the Main and the Second Boards are illustrated in Table 4.

Regression Models of the PI and OFS Ratios

The first stage of the analytical exercise involves regressing each of the independent variable PI and OFS ratios with the abnormal returns measured by CAR and BHAR individually in a set of univariate regression for the seven windows. These simple models are listed below:

1a) CAR [D1, M1, M3, M6, Y1, Y2, Y3] $= \beta_0 + \beta_1$ PI Ratio + ε

1b) BHAR [D1, M1, M3, M6, Y1, Y2, Y3] $= \beta_0 + \beta_1$ PI Ratio + ε

2a) CAR [D1, M1, M3, M6, Y1, Y2, Y3] $= \beta_0 + \beta_1$ OFS Ratio + ε

2b) BHAR [D1, M1, M3, M6, Y1, Y2, Y3] $= \beta_0 + \beta_1$ OFS Ratio + ε

The regression process are followed by the pair-wise multivariate analysis consisting both the PI and OFS ratios against the abnormal performance of CAR & BHAR. These models are as follow:

1) CAR [D1, M1, M3, M6, Y1, Y2, Y3] $= \beta_0 + \beta 1$ PI Ratio + $\beta 2$ OFS Ratio + ε

2) BHAR [D1, M1, M3, M6, Y1, Y2, Y3] $= \beta_0 + \beta_1$ PI Ratio + β_2 OFS Ratio + ε

After the two sets of regression are completed, the coefficients obtained are used to interpret the relationships.

Justification of the Study Period Selected

Prior to the year 2002, the Malaysian market was recuperating from the negative impact of the Asian Financial Crisis which resulted in a severe drop in the number of companies going public. The number of IPOs for the Main and Second Boards which dropped from the height of 88 in 1997 to only 28 in 1998. The full blown effect was felt in 2001 when only 20 IPOs

listing is reported in that year, down from 38 the year before. Table 1 gives an account on the number of IPOs successfully listed on the Malaysian stock market and the number of usable sample collected for analyses purpose. The MESDAQ IPOs are excluded in this study because the Securities Commission of Malaysia (SC) prohibits them from offering OFS shares.

Table 1: The Number of Main and Second Board IPOs on Bursa between 1997 and 2010

Year	Main Board					
2010	3					
2009	12					
	Main Board		**Second Board**		**Total**	
	No. of IPOs	**Usable Sample**	**No. of IPOs**	**Usable Sample**	**No. of IPOs**	**Usable Sample**
2008	7	**4**	8	**8**	15	**12**
2007	15	**15**	8	**8**	23	**23**
2006	10	**9**	8	**7**	18	**16**
2005	16	**13**	17	**15**	33	**28**
2004	15	**13**	26	**27**	41	**40**
2003	16	**14**	22	**22**	38	**36**
2002	22	**21**	22	**19**	44	**40**
Subtotal	101	**89**	111	**106**	212	**195**
2001	6		14		20	
2000	12		26		38	
1999	10		11		21	
1998	6		22		28	
1997	25		63		88	

Note: The sample period between 2002 and 2008 is selected is due to the higher IPO frequency. The sample number columns indicate the number of usable sample collected in this study. The Second Board is made redundant and companies are absorbed into the Main Board from 2009. (Source: http://www.bursamalaysia.com/market/)

The year 2002 is chosen as the beginning of the study period because the IPO activity surges in 2002 after a four-year decline. However, the study period ends in 2008 are due to two reasons. Firstly, the number of IPO slows down to a near halt after 2008 to 12 and three in the years 2009 and 2010 respectively. The reason for the drastic decline is due to the adverse

effect of the 2007-2008 Global Financial Crisis on the Malaysian stock market. Although the Malaysian market was shielded from this calamity as the Sub-Prime products were not traded in Malaysia back then, the sentiments of the local IPO market were severely affected by the global market which resulted in a big drop in the IPO activity. The second reason is the termination of the Second Board in the year 2009. The Second Board was setup in 1989 to assist small companies to seek public funds. With the introduction of the MESDAQ in the later period, the Second Board was deemed to be a duplication of duty and was terminated by the authority. As a result, all the Second Board companies were absorbed into the Main Board, thus the inter-board comparison between the Main and the Second Boards is not feasible beyond the year 2008.

The regression results of the equations presented in this section are used to the test null hypotheses. The data collected, adjusted and compiled are analysed with the EViews statistical software. The descriptive statistics and the regression results are illustrated in sub-sections 4.1 and 4.2 respectively.

FINDING AND DISCUSSION

Descriptive Statistics

Over the study period of 2002 to 2008, Bursa consists of three independent boards with different set of listing rules. While the Main Board caters for the sizeable company with consistent track record, the Second Board consists of smaller companies with steady returns. The MESDAQ IPOs are not discussed in this study because the SC prohibits them from offering OFS shares. The differences in the criteria laid down by the SC for these two boards have resulted in the differences in the magnitude of the mean and the median of the IPO abnormal returns among other things. Table 2 and 3 illustrate the descriptive statistics of the abnormal returns computed by CAR and BHAR from window D1 to Y3 for the Main Board and the Second Board respectively.

Table 2: The Descriptive Statistics of the IPO Performance for the Main Board

Main Board 89	Mean	Median	Maximum	Minimum	Std. Dev.
CARD1	0.186868	0.09424	1.81202	-0.28005	0.31408
CARM1	-0.03496	-0.05222	0.5641	-0.38783	0.150358
CARM3	-0.02225	-0.0604	0.59614	-0.67254	0.21696
CARM6	-0.04183	-0.06491	0.65441	-0.75442	0.273271
CARY1	-0.03991	-0.08144	0.82593	-0.95699	0.355472
CARY2	-0.0565	-0.06401	1.4329	-1.9496	0.532841
CARY3	-0.13113	-0.12778	1.42408	-2.19241	0.618675
BHARD1	0.186868	0.09424	1.81202	-0.28005	0.31408
BHARM1	-0.03187	-0.05678	0.64766	-0.33313	0.154463
BHARM3	-0.01608	-0.06623	0.72881	-0.49677	0.216414
BHARM6	-0.02947	-0.06405	1.00374	-0.43509	0.283654
BHARY1	-0.03284	-0.12432	1.29516	-0.78841	0.397504
BHARY2	-0.07484	-0.21305	3.0575	-0.96965	0.666885
BHARY3	-0.1836	-0.36283	3.32735	-1.28242	0.732521

Note: The abnormal returns by CAR & BHAR adjusted by FBMEMAS based on 89 IPO samples of the Main Boards between 2002 and 2008 for windows from Day 1 to Year 3.

Table 3: The Descriptive Statistics of the IPO Performance for the Second Board

Second Board 106	Mean	Median	Maximum	Minimum	Std. Dev.
CARD1	0.226369	0.10072	2.41762	-0.30306	0.392081
CARM1	-0.03546	-0.05268	0.52942	-0.51642	0.151882
CARM3	-0.03192	-0.03676	0.80896	-0.67246	0.237045
CARM6	-0.02647	-0.06888	1.97868	-0.63986	0.348171
CARY1	-0.0032	-0.05235	1.78373	-0.90872	0.430095
CARY2	-0.06426	-0.12368	1.7762	-1.28607	0.566852
CARY3	-0.11274	-0.21699	2.36577	-1.68899	0.647461
BHARD1	0.226029	0.10072	2.41762	-0.30306	0.392467
BHARM1	-0.03877	-0.05911	0.42538	-0.44636	0.141477
BHARM3	-0.02997	-0.04132	1.25316	-0.47084	0.239928
BHARM6	0.012923	-0.10594	6.47376	-0.53129	0.702705

BHARY1	-0.009	-0.16675	4.56226	-0.65105	0.636355
BHARY2	-0.14143	-0.33312	4.42647	-1.13587	0.754716
BHARY3	-0.26911	-0.53214	9.20053	-1.21608	1.180638

Note: The abnormal returns by CAR and BHAR adjusted by FBMEMAS based on 106 IPO samples of the Second Board between 2002 & 2008 for windows from Day 1 to Year 3.

From Table 2 and 3, we observe that:

(i) IPOs of the two boards exhibit a high degree of IRs (D1 return) regardless of the method used to calculate the abnormal returns. The mean of IR ranges from 18.7% in the Main Board to 22.6% in the Second Board. With the maximum and the minimum of 181% & -28% for the Main Board and 242% & -30.3% in the Second Board respectively.

(ii) The long-term performances beyond the first year are generally poor for the two boards especially for the Second Board. The worst performance of -53.2% is recorded in the median Y3 for the Second Board utilising BHAR.

(iii) The disparities between CAR and BHAR to derive the abnormal returns remain small up to 6 months (M6) post-listing. The discrepancies become large after one year with BHAR producing more negative returns than CAR.

The above results are consistent with the findings of Norliza *et al.* (2017) where they find that the average IR of 419 Malaysian IPOs from 2000 to 2015 to be 29%, with 360% as the maximum and -68% to be the minimum.

Table 4: The Descriptive Statistics of the PI and OFS Ratios for the Main & Second Boards

Main Board	Mean	Median	Maximum	Minimum	Std. Dev.
PI Ratio	0.19652	0.1744	0.85	0	0.150426
OFS Ratio	0.129119	0.072	0.67406	0	0.148109
Second Board					
PI Ratio	0.169443	0.16052	0.43685 0	0	0.081174
OFS Ratio	0.126195	0.10221	0.37083	0	0.104951

Note: The percentage of shares allocated to investor from the PI and OFS source which form

the independent variables in the regression. Samples are collected from 89 Main Board and 106 Second Board companies listed between 2002 and 2008.

The descriptive statistics of the independent variable listed in Table 4 illustrates that the Main Board IPOs allocates a higher ratio of PI to investors. The mean PI is at 19.6% and 16.9% for the Main and Second Boards respectively. On the contrary, the Second Board IPOs allocates a higher portion of OFS to investors, this is evident by the median of 10.2% versus 7.2% in the Main Board. In generally, the ratios between the two boards are within a small range.

The univariate regressions results for the PI and the OFS ratios are reported in Tables 5 and 6 respectively. This is followed by the pair-wise multivariate analysis of both the independent variables in Table 7.

Table 5: The Univariate Results of the Public Issue Ratio for the Main and Second Boards

	OLS : CAR = β0 + β1 PI Ratio		OLS : BHAR = β0 + β1 PI Ratio	
	Main Board	**Second Board**	**Main Board**	**Second Board**
D1	0.130	-0.667	0.130	-0.668
M1	-0.021	0.085	-0.018	0.077
M3	-0.166	0.124	-0.155	0.066
M6	-0.009	-0.028	-0.011	-0.331
Y1	-0.174	0.478	-0.199	0.128
Y2	-0.096	0.910	-0.270	1.144
Y3	0.076	1.205	0.091	2.352*

*Note: The univariate results of PI as the sole independent variable against the performance of IPOs between 2002 and 2008. The dependent variables are the two methods of performance measurements, CAR & BHAR adjusted by FBMEMAS for windows between D1 and Y3. The number of samples for the Main Board & the Second Board are 89 & 106 respectively. The probability significance of 10, 5, & 1% are represented by *, ** and *** respectively.*

Judging by the univariate regression results for the PI ratio against the two performance measuring methods for the Main and Second Board, the trend is clear that PI is more negatively correlated with the performance of IPO in the Main Board in the medium terms but the relationships are positive in D1 and Y3. The correlations of the Second Board are mixed with only one coefficient of 2.352, significant at 10% on Y3 when measured by BHAR. Overall, the PI ratio does not correlate strongly with firm's performance.

Table 6: The Univariate Results of the Offer for Sale Ratio for the Main and Second Boards

	OLS : CAR = β0 + β1 OFS Ratio		OLS : BHAR = β0 + β1 OFS Ratio	
	Main Board	**Second Board**	**Main Board**	**Second Board**
D1	-0.382*	-0.352	-0.382*	-0.355
M1	-0.038	-0.163	-0.027	-0.138
M3	0.034	-0.264	0.069	-0.323
M6	-0.103	-0.493	-0.093	-1.076*
Y1	-0.123	-0.536	-0.197	-0.902
Y2	0.344	-0.505	0.112	-1.170*
Y3	0.349	-0.283	0.184	-1.908*

*Note: The univariate results of OFS as the sole independent variable against the performance of IPOs between 2002 and 2008. The dependent variables are the two methods of performance measurements, CAR & BHAR adjusted by FBMEMAS for windows between D1 and Y3. The number of samples for the Main Board and the Second Board are 89 & 106 respectively. The probability significance of 10, 5 and1% are represented by *, ** and *** respectively.*

In Table 6, the univariate regression results of the OFS ratio on the Main Board are mixed, with only one coefficient of -0.382 (p=10) on D1 which is consistent with the finding of Norliza *et al.* (2017), where the authors uncover a coefficient of -0.167 (p=10) on D1 with 419 Malaysian IPO samples. However, the trend in the Second Board is clearly negative for all windows. Measured by BHAR, there are three coefficients which are significant at 10%. These coefficients are 1.076 on M6, -1.170 on Y2 and -1.908 on Y3, indicating that the OFS ratio is negatively correlated with the long-term performance of the Second Board IPOs. So far, the two sets of the univariate regression demonstrated that the Second Board's OFS ratio are negatively correlated with firm's performance over the long-term windows.

Table 7 reports the results of the pair-wise multivariate regression of both the PI and OFS ratios. The relationships between the different performance measurements in all windows are consistent with the univariate results shown in Table 5 and 6. The results of the multivariate regression confirm that the intertwining relationships of the two signals produce mixed outcome except the OFS ratio in Second Board measured by BHAR. The coefficients of the OFS Ratio in the Second Board by BHAR are consistently negative for all the windows and only one significant coefficient is found in M6.

Table 7: The Multivariate Regression Results of the PI Ratio & OFS Ratio

	OLS : CAR = β0 + β1 PI Ratio+ β2 OFS Ratio				OLS : BHAR = β0 + β1 PI Ratio+ β2 OFS Ratio			
	Main Board		Second Board		Main Board		Second Board	
	PI	OFS	PI	OFS	PI	OFS	PI	OFS
D1	-0.084	-0.425	-0.836*	-0.516	-0.084	-0.425	-0.838*	-0.519
M1	-0.054	-0.065	0.034	-0.157	-0.042	-0.048	0.034	-0.131
M3	-0.202	-0.07	0.04	-0.256	-0.162	-0.015	-0.043	-0.331
M6	-0.083	-0.146	-0.203	-0.533	-0.079	-0.134	-0.731	-1.219*
Y1	-0.319	-0.289	0.323	-0.473	-0.405	-0.407	-0.179	-0.938
Y2	0.104	0.398	0.795	-0.349	-0.289	-0.038	0.812	-1.011
Y3	0.341	0.525	1.188	-0.05	0.002	0.185	1.845	-1.546

*Note: The OLS results of the pair-wise analysis for the independent variables PI and OFS Ratios against CAR and BHAR between 2002 and 2008 for windows from Day 1 to Year 3. The Main and the Second Boards consist of 89 and 106 samples respectively. The probability significance of 10, 5 and 1% are denoted by *, ** and *** respectively.*

Hypotheses Testing and Discussion

The regression results illustrated in sub-section 4.1 are used to test the two null hypotheses.

H1 : The Public Issue Ratio has no effect on the post listing performance of IPOs.

H2 : The Offer for Sale Ratio has no effect on the post listing performance of IPOs.

Since the univariate and the multivariate regression results illustrated in Table 5 and 7 respectively demonstrate mixed and weak relationships between the PI ratio and the IPO returns measured by both CAR and BHAR for most windows, H1 cannot be rejected and therefore PI is not a good signalling tool for investor to deploy when considering IPO investment proposal. Most studies which conduct the performance analysis of the PI ratio conclude that pure PI companies marginally underperform the market post listing but the relationships are not significant (refer Loughran & Ritter, 2002 ; Yong, Yatim & Sapian, 2001). In most cases, the offer of PI shares is the normal cause of raising capital for business expansion when companies go public. The additional shares issued naturally lead to the dilution of firm's value thus, according to Dolvin and Pyles (2002), the share prices adjust

downward in tandem. This natural phenomenon is especially true during the hot market as Brau, Li and Shi (2006) noted that companies tend to issue extra PI shares when valuation is high but subsequently, prices retract to the equilibrium level.

The result obtained in this study is consistent with the other studies which find that the offer of shares from the PI tranche does lead to marginal underperformance due to the dilution effect. However, because the negative relationships are weak, the PI ratio cannot act as a credible signaller to infer the future firm's values for both the Main and the Second Board IPOs on Bursa Malaysia.

On the other hand, based on the univariate regression analysis on the OFS ratio reported in Table 6, it is safe to reject H2. Hence, the OFS ratio is a credible signaller to infer the poor long-term post-listing performance of the IPOs. Conversely, the pair-wise multivariate regression does not yield many significant coefficients, however the coefficients are mostly negative, supportive of the results obtained by the univariate regression. The rejection of the null hypothesis H2 comes as no surprise as studies have shown that the extent of insider selling their shares at the time of the IPO provides an effective signal in a negative way (Jain, Jayaraman & Kini, 2007). The negative relationships from the regression results are consistent with the Signalling Theory which stipulates that when issuers sell down their stakes, it sends gloomy signals, even though the offer of OFS shares do not cause dilution to firm's values. In a Malaysian study, Wan Nordin (2005) confirms that when the owners' participation ratio (OFS) is high, the short-term performance usually suffers and the negative correlation of the OFS ratio is found to be concentrated among the smaller IPOs. Based on the results presented by the univariate regressions and confirmed by the multivariate regressions, the OFS ratio has the credential to act as a signaller to predict the dismal long-term performance of the Second Board IPOs.

CONCLUSION

The regression results of the PI ratio indicated that this variable produced weak relationship therefore is not capable of acting as a credible signaller to IPO investors to infer the future performance of IPOs. The null hypothesis of the OFS Ratio however is rejected for the Second Board, indicating that the smaller IPOs with high OFS ratio perform badly when the windows are stretched beyond six months. The OFS ratio is therefore a credible signal to infer the negative medium to long-term performance of the Second Board IPOs.

From the IPO investor's perspective, the implication of this finding is to caution the investing public when faced with the decision to invest in a Second Board IPOs with high OFS ratio. This conclusion is consistent to the findings of Jain, Jayaraman and Kini (2007) and Wan Nordin (2005) where they envisage that high OFS ratio indicates negative future outlooks for companies. Although the Second Board has since been absorbed into the Main Board but this small firm phenomena is expected to continue to manifest in the small scale IPOs. The result is also consistent with the Signalling Theory advocated by Leland and Pyle (1977) where owners retained less during IPO, it usually signals dismal future performance.

In summary, Bursa investors are advised to avoid the small capitalised IPOs with high OFS ratio. Furthermore, the strong negative correlations of the OFS ratio are confined to the BHAR methodology of deriving the abnormal returns. The discrepancies in the results obtained between the two methods of deriving the abnormal returns are due to the biases inherent in both the methodologies especially when the windows of studies are stretched. As a consequence, the interpretation of the long-term relationship requires extra care.

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